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development, wonder why this is so. They frequent entirely *Quercus aquatica*—decaying or dead. *Polyporus licnoides*, Mont., is an example of a tropical migration; it is rare. *P. carneus*, Nees., rare. *P. niphodes*, B. & Br., prolific on dead limbs. *P. Salleanus*, Berk., rare. *P. plebeius*, Berk., not abundant, but very fine and large. I have specimens over seven inches across. Then there are others of this genus which I omit now. Neglecting for the present a number of genera, I will refer to the curious *Glenospora Curtisii*, Berk., and the *Thelephora pedicellata*, Schw. —both found on small *Quercus aquatica* and *Myrica cerifera*, which in this locality seem to monopolize their attentions. Station low, wet, or damp grounds. *Grandenia tuberculata*, B. & C., occur sparingly on rotten branches. The leaves of various trees and shrubs swarm with certain species. And whether one looks above or below, he will not be disappointed.

AMANITINE AND ITS ANTIDOTE.*

BY CHARLES MACILVAINE, OF PHILADELPHIA.

The many cases of severe illness caused by toadstool eating, and the very general lack of knowledge as to the nature of the poisons producing them, as well as the proper treatment to be pursued as designated by the peculiar symptoms attaching to each poison of the several noxious varieties of toadstools, render it desirable that what is thus far ascertained about them should be widely published and known to the profession.

No physician called upon to give relief in a case of toadstool poisoning can do so intelligently, or be certain of success, unless he can distinguish, from a sample of the toadstool eaten, what particular poison is at work; or, from the symptoms, to which family of toadstools the illness is ascribable. With this knowledge in his possession, he holds the key to the situation, and, by its use, can stay the simple suffering produced by particular toadstools, or preserve his patient from what, without it, would be certain death, if any of the deadly kinds have been eaten.

It is the duty of the mycologist to inform the physician how to distinguish between those varieties of toadstools which create simply local troubles in the human system, and those whose poisonous principles are absorbed by it to its destruction.

The toadstools likely to be eaten are, Agarics (those having gills, or plaits, under their caps), Polypori and Boleti (having tubes and sponge-like surfaces beneath their caps), Hydnei (having spike-like projections

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*This article, a portion of which is here reproduced, was printed in the *Medical and Surgical Reporter*, Dec. 12th, 1885.

underneath) Clavaria (which are club-shaped, or of coral forms, having thin spore-bearing membranes upon their upper surfaces), and Lycoperdons, or common puff-balls.

The Hydnei and Clavaria are nearly all edible. None of them are known to contain poisonous principles; but disturbances may arise from eating the tough and bitter varieties.

All of the puff-balls (Lycoperdons), having white flesh, are excellent, tender and nutritious, so long as the flesh is white; but when the flesh changes from white to yellow upon being cut or broken, it becomes bitter and unpleasant to the taste, and in that and later stages of age or decomposition, eating of them would be likely to produce effects analogous to those from eating stale or rotten vegetables. Those puff-balls dark inside when young (Scleroderma) are not considered edible; neither is it determined that they are not. No authority brands them as noxious; but they are coarse and uninviting.

Of the Boleti, there are many luscious kinds; with mycophagists, they are great favorites; by the community at large, they are not so well known, and are at present rarely eaten in this country; in Europe, they form a prominent article of food. Several varieties of them are supposed to be non-edible, and many well-versed writers pronounce them highly pernicious; yet every toadstool season, careful experimenters remove suspected members of the family from the black-list. There is no recorded case of death from toadstool-poisoning that has been traced to a Boletus; but that some of them contain a bitter, acrid, or slimy, principle which is hurtful, but which yields to such ordinary remedial agents as are suggested by the symptoms, there is no doubt.

The noxious varieties of Boleti, as a rule, are bitter, and all change color to red or blue when cut or broken. This change of color should not indicate to the physician that the Boletus is poisonous, unless it is accompanied by a distinctly bitter taste; it should, however, put him on his guard.

Of all the foregoing families of toadstools, it may be said that no recorded case of poisoning is ascribed to them. Every year the public journals chronicle deaths from toadstool eating, but they never mention what species of toadstool occasions them. It would be of great practical value if, whenever possible, this information were given to the public, and fresh samples of the injurious fungus sent to some mycologist for positive identification.

Many toadstools like most edible things, cause sickness, not because they contain an inherent poison, but for the reason that they are frequently overloaded with seasoning and rich additions, eaten in large quantities, when in an improper condition for food, owing to decomposition having set in, the leathery nature of some varieties, or want of sufficient cooking. Mr. Julius A. Palmer, of Boston, whose large experience makes him an authority upon the subject, advises the use of sweet oil and whiskey, in equal proportions, in all cases where simply abdominal and intestinal derangements occur from toadstool eating.

The remaining family of toadstools, the Agaricini, or gill-bearing, has more members than the sum of all the others of which individuals are eaten. To it belong the common mushrooms, Agricus campestris and Agricus arvensis, together with many other members possessing high flavor and excellent qualities.

It is from this family that the masses gather for their tables, and in this family that real danger from toadstool poisoning exists. It contains a small genus consisting of about thirty members, known as AMANITA, eight of which are known to be edible, and at least five to contain a deadly alkaloid, designated under the several names of Muscarine, Bulbosine and Amanitine.

This genus has distinguishing marks which cannot be mistaken, and should be known by everyone. All of its members have gills which, with one exception, an edible variety having yellow gills—Amanita caesaria—are white at all stages of their growth. Their caps, which are convex, concave, or umbonate, generally show remains of an investing membrane existing as warts, scruff, or scales, which are easily removable by rubbing, and leave the smooth, satin-like skin intact. The flesh is white, tasteless, and almost scentless in young specimens. In older specimens, or soon after gathering, a strong and unpleasant odor generates.

(To be continued.)

NEW LITERATURE.

BY W. A. KELLERMAN.

"UBER DAS VERSCHWINDEN GEWISSER INSEKTEN INFOLGE DER EINWANDERUNG DER PUCCINIA MALVACEARUM, MONT." VON Dr. F. Ludwig, in Greiz. Hedwigia, 1885, Heft V.

This parasite appeared first in 1875, in Elsterthal, near Greiz, on the wild Malvas. In the following year it spread rapidly, and attacked also the cultivated species of Malva. Such davastation ensued that Dr. Ludwig in 1882 urged the adoption of ordinances looking to the destruction of the parasite. These were not as effectual as desired, and at present, in many places the cultivated species, as well as the wild species, M. neglecta and M. sylvestris, have disappeared in consequence. A similar case was reported to Dr. Ludwig by Dr. J. G. Otto Tepper, of Norwood, in South Australia. A few years ago, the Puccinia malvacearum found its way to this part of Australia. The Lavatera plebeja flourished there exuberantly at the time, but now is seldom seen. Curiously enough, however, Malva rotundifolia has taken its place in spite of the parasite. With Lavetera, have also disappeared certain insects